JCK30 series

XP Power

30W Conduction cooled

DC-DC converters

The JCK30 series is housed in a 50.8 x 25.4 x 10.2 mm (2" x 1" x 0.4") PCB mount metal case. Featuring a 2:1 input voltage range of 9 to 18VDC, 18 to 36VDC or 36 to 75VDC with regulated single outputs of 3.3, 5, 12 & 15VDC and dual outputs ±12 or ±15VDC. Single output models are adjustable ±10% with a trim resistor.

The 30W JCK30 has 1.6kVDC isolation between input and output, over voltage, overload & short circuit protection is standard as is remote On/Off, an optional heatsink (suffix -HK) can be specified. The operating temperature range is from -40°C to +75°C, with derating above +50°C.

Features

- Regulated single outputs 3.3, 5, 12 & 15VDC
- Regulated dual outputs ±12 & ±15VDC
- 2:1 input range
- 50.8 x 25.4mm (2" x 1") footprint, 0.4'' profile
- 1.6kVDC isolation
- Single outputs trimmable ±10%
- Remote On/Off
- Continuous short circuit protection
- Optional heatsink
- -40°C to +75°C operating temperature
- Full power to +50°C
- 3 year warranty

Applications

Autonomous equipment

Industrial electronics & robotics

Technology

Dimensions

50.8 x 25.4 x 10.2mm (2.00" x 1.00" x 0.40")

Documentation

For further information click the link or scan the code

→ xppower.com

Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency	Input current[1]		Maximum capacitive load
					No load	Full load	
JCK3012S3V3	9-18VDC	3.3VDC	8.00A	89%	80mA	2426mA	20000µF
JCK3012S05		5.0VDC	6.00A	91%	180mA	2874mA	14000µF
JCK3012S5V1		5.1VDC	6.00A	92%	160mA	2874mA	14000µF
JCK3012S12		12.0VDC	2.50A	91%	30mA	2809mA	2000µF
JCK3012S15		15.0VDC	2.00A	92%	30mA	2809mA	2000µF
JCK3012D05		±5.0VDC	±3.00A	89%	180mA	2874mA	±3000µF
JCK3012D12		±12.0VDC	±1.25A	90%	50mA	2874mA	±1250µF
JCK3012D15		±15.0VDC	±1.00A	91%	50mA	2874mA	±1000µF

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Notes:

1. Input current specified at nominal input.
2. Cross regulation for duals is ±5% when one output is at 100% and the other is varied between 25% and 100% .
3. Measured with 1µF ceramic capacitor across output rails.
4. A 220 µF/250V capacitor across the input is required in order to meet EN61000-4-4 and EN61000-4-5.
5. For heatsink option, add '-HK' to the end of the part number

JCK30 series

Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency	Input current[1]		Maximum capacitive load
					No load	Full load	
JCK3024S3V3	18-36 VDC	3.3VDC	8.00A	91%	70mA	1185mA	20000µF
JCK3024S05		5.0VDC	6.00A	92%	100mA	1420mA	14000µF
JCK3024S5V1		5.1VDC	6.00A	92%	100mA	1448mA	14000µF
JCK3024S12		12.0VDC	2.50A	92%	20mA	1436mA	2000µF
JCK3024S15		15.0VDC	2.00A	92%	40mA	1420mA	2000µF
JCK3024D05		±5.0VDC	±3.00A	90%	100mA	1437mA	±3000µF
JCK3024D12		±12.0VDC	±1.25A	91%	40mA	1453mA	±1250µF
JCK3024D15		±15.0VDC	±1.00A	91%	50mA	1437mA	±1000µF
JCK3048S3V3	36-75 VDC	3.3VDC	8.00A	90%	50mA	593mA	20000µF
JCK3048S05		5.0VDC	6.00A	91%	70mA	702mA	14000µF
JCK3048S5V1		5.1VDC	6.00A	91%	70mA	724mA	14000µF
JCK3048S12		12.0VDC	2.50A	91%	30mA	718mA	2000µF
JCK3048S15		15.0VDC	2.00A	91%	30mA	710mA	2000µF
JCK3048D05		±5.0VDC	±3.00A	90%	70mA	710mA	±3000µF
JCK3048D12		±12.0VDC	±1.25A	90%	50mA	718mA	±1250µF
JCK3048D15		±15.0VDC	±1.00A	90%	40mA	718mA	±1000µF

Notes:

1. Input current specified at nominal input.
2. Cross regulation for duals is ±5% when one output is at 100% and the other is varied between 25% and 100% .
3. Measured with 1µF ceramic capacitor across output rails.
4. A 220 µF/250V capacitor across the input is required in order to meet EN61000-4-4 and EN61000-4-5.
5. For heatsink option, add '-HK' to the end of the part number

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	See models & ratings table				
Isolation: input to output	1600			VDC	
Isolation: input to case	1600			VDC	
Isolation: output to case	1600			VDC	
Isolation capacitance		1500		pF	
Switching frequency		330		kHz	
Power density		614.5 (37.5)		W/cm^3 (W/in^3)	
Mean time between failure		430		kHrs	MIL-HDBK-217F, +25°C GB

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	9		18	VDC	12VDC nominal
	18		36		24VDC nominal
	36		75		48VDC nominal
Input current	See models & ratings table				
Input reflected ripple current		20		mA/pk-pk	12µH inductor
Input surge			25	VDC	12VDC models (for 100ms)
			50		24VDC models (for 100ms)
			100		48VDC models (for 100ms)
Undervoltage lockout	On at 8.6VDC Off at 7.9VDC				12VDC models
	On at 17.8VDC Off at 16VDC				24VDC models
	On at 33.5VDC Off at 30.5VDC				48VDC models
Input filter	Pi network				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	See models & ratings table				
Output voltage trim		±10		%	Single outputs models only
Minimum load	0			%	No minimum load required
Line regulation			±0.5	%	
Load regulation			±0.5	%	Single output
			±1		Dual outputs
Setpoint accuracy		±1		%	
Cross regulation		±5		%	
Transient response			3	%	Deviation, recovery to within 1% in <250µs for a 25% load change
Start up time		30		ms	
Ripple & noise		100		mV pk-pk	20Mz bandwidth
Short circuit protection	Trip & restart (hiccup mode), auto recovery				
Temperature coefficient		0.02		%/ ˚C	
Overload protection	150			%	Full load
Remote on/off	On = >3.0VDC) or open circuit				
	Off = <1.2VDC or short pins 2 & 3				
Overvoltage protection		3.9		VDC	3.3VDC models
		6.2			5VDC models
		15			12VDC models
		18			15VDC models
		±6.2			±5VDC models
		±15			±12VDC models
		±18			±15VDC models

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+75	°C	See derating curve
Storage temperature	-40		+125	°C	
Case temperature			+105	°C	
Cooling	Convection cooled				
Operating altitude	5		95	%	RH, non condensing

JCK30 series

Safety approvals

Safety agency	Standard	Notes & conditions
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Emissions - EMC

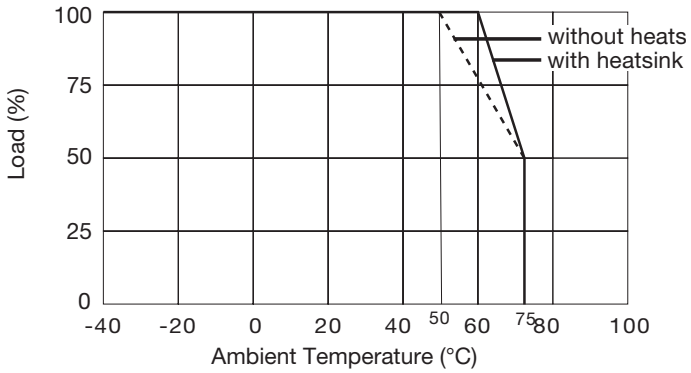
Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032	Class A	With external components, see application notes
Radiated	EN55032	Class A	

Immunity - EMC

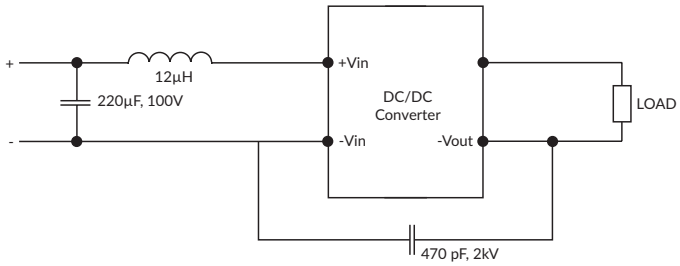
Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	3	A	
EFT/Burst	EN61000-4-4	3	A	
Surge	EN61000-4-5	3	A	
Conducted immunity	EN61000-4-6	10Vrms	A	
Magnetic fields	EN61000-4-8	1A/m	A	

Application notes

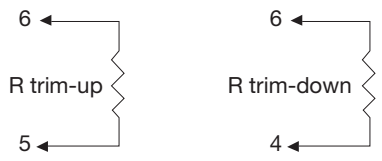
Derating curve



Input filter



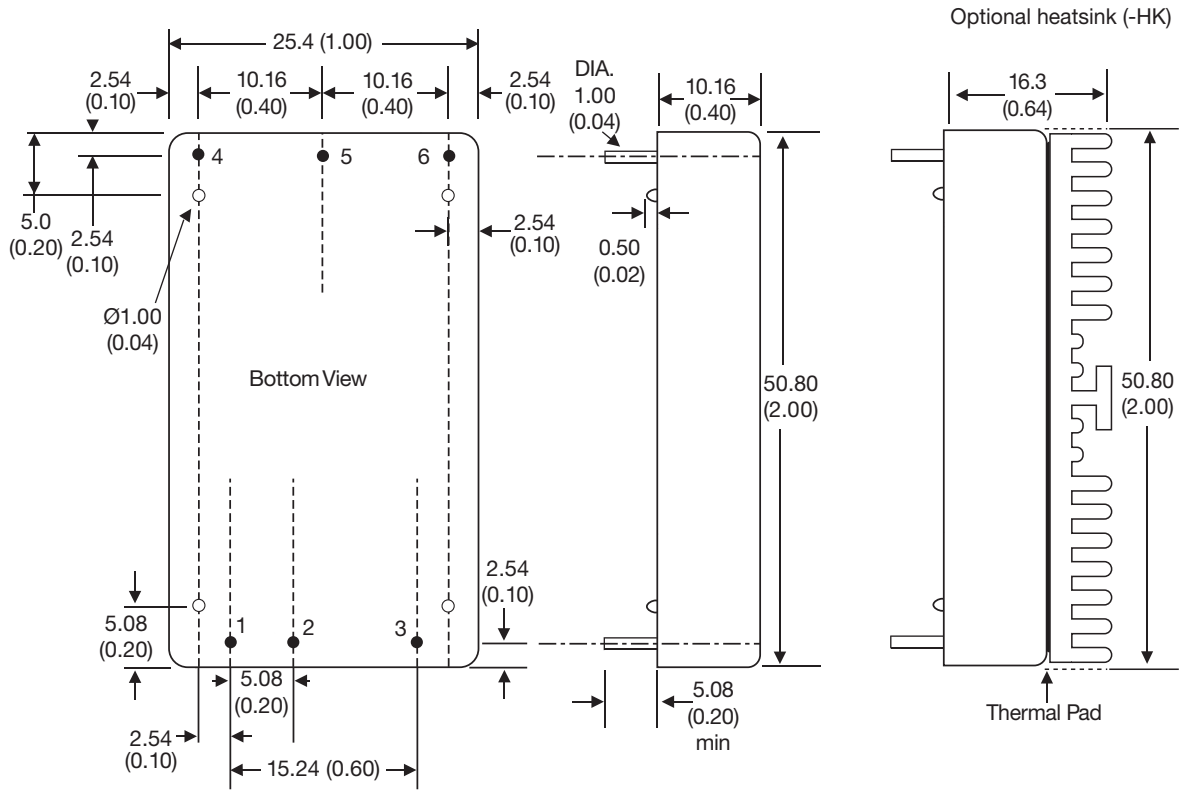
External output trim



Output can be externally trimmed using this method.

Contact Sales for details.

Mechanical details



Pin connections		
Pin	**Single**	**Dual**
1	+Vin	+Vin
2	-Vin	-Vin
3	Remote On/Off	Remote On/Off
4	+Vout	+Vout
5	-Vout	Com
6	Trim	-Vout

Notes:

1. All dimensions are in mm (inches).
2. Weight: 31g (0.07lbs) approx
3. Pin diameter: 1.0 ±0.05 (0.04 ±0.002)
4. Pin pitch tolerance: ±0.35 (±0.014)
5. Case tolerance: ±0.5 (±0.02)